

Mr. Wing's DESK

	1	2	3	4	5	6
1			Rush, Juliana M Grade:11			Rafferty, Dane E Grade:11
2			Schuetz, Thalia n Grade:12	Comer, Juliet F Grade:10	McLeod, Taylor A Grade:12	Johnson, Deborah C Grade:11
3	Almeida, Felipe G Grade:11	Delgado, Brittany A Grade:11	Erickson, Ross J Grade:10	Russell, Rachel M Grade:10	Winter Martinez, Taylor C Grade:11	DeBrohun, Zoe E Grade:12
4	Hertzog, Samantha K Grade:11	Estrada, Brianna L Grade:11	Vray, Clarisse M Grade:10	Adams, Katherine P Grade:09	Mehreen, Sreya n Grade:12	Heffernan, Margaret A Grade:11
5	Garney, Michael J Grade:09	Seet, Kin Boon Grade:12	Dente, Michael A Grade:10	Mast, Lacey N Grade:11	Williston, Nicole A Grade:12	Cole, Tyler L Grade:11
6	Killeen, Travis C Grade:11	Ng, Isaac K Grade:09	Eaton, Blake D Grade:10	Templeton, Ryan T Grade:11	Mc Cay, Julia A Grade:12	Burkhardt, Jeremiah L Grade:12

DOOR

WARM-UP

① Solve the System:

$$\begin{pmatrix} x & y & z \\ 4 & -1 & 2 \end{pmatrix}$$

$$\begin{cases} x - 2y + 3z = 12 \\ 2x - y - 2z = 5 \\ 2x + 2y - z = 4 \end{cases}$$

② Find the determinant (look it up if you don't know) of the following matrix and, if possible, the inverse:

$$\begin{bmatrix} -2 & 3 \\ 4 & 1 \end{bmatrix}$$

$$\begin{bmatrix} -2 & 3 \\ 4 & 1 \end{bmatrix} \Rightarrow \overset{\text{determinant}}{(-2)(1) - (4)(3)} = -14 \quad \begin{bmatrix} -2 & 3 \\ 4 & 1 \end{bmatrix}^{-1}$$

$$A = \begin{bmatrix} a & b \\ c & d \end{bmatrix} \Rightarrow \text{determinant } ad - bc$$

$$\frac{1}{-14} \begin{bmatrix} 1 & -3 \\ -4 & -2 \end{bmatrix}$$

$$A^{-1} = \frac{1}{ad - bc} \begin{bmatrix} d & -b \\ -c & a \end{bmatrix}$$

Wed. (Nov. 10): Solving Systems using Inverse Matrices

DUE: Extended Problem, HW from last class

Fri. (Nov. 12): Solving BIG Systems using Inverse Matrices and Calculators.

Tues. (Nov. 16): Review Day

- Solving 3-variable systems algebraically (elimination/substitution)
- Adding/Subtracting/Multiplying Matrices & solving for X
- Finding the inverse matrix
- Using the inverse matrix to solve 2-variable systems
- Using the calculator to solve 3 or more variable systems

Thurs. (Nov. 18): Chapter 4 Assessment.

(inverses)

$$\begin{bmatrix} 2 & 1 \\ 4 & 3 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 5 \\ 13 \end{bmatrix} \Rightarrow \begin{bmatrix} 2x + y \\ 4x + 3y \end{bmatrix} = \begin{bmatrix} 5 \\ 13 \end{bmatrix}$$

$$\begin{bmatrix} a & b \\ c & d \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} = \begin{bmatrix} a & b \\ c & d \end{bmatrix} \quad \begin{array}{l} 2x + y = 5 \\ 4x + 3y = 13 \end{array} \quad \begin{array}{l} \text{solve} \\ x, y \\ 1, 3 \end{array}$$

$$\cancel{A^{-1}}A \cdot I = \cancel{A^{-1}}A$$

$$I = A^{-1}A$$

$$\cancel{A^{-1}}Ax = \cancel{A^{-1}}b$$

$$x = A^{-1}b$$

$$\begin{bmatrix} 2 & 1 \\ 4 & 3 \end{bmatrix}^{-1}$$

$ad - bc$

$$\det = 6 - 4 = 2$$

$$= \frac{1}{2} \begin{bmatrix} 3 & -1 \\ -4 & 2 \end{bmatrix}$$

$$\rightarrow = \begin{bmatrix} 3/2 & -1/2 \\ -2 & 1 \end{bmatrix}$$

$$\begin{bmatrix} 2 & 1 \\ 4 & 3 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 5 \\ 13 \end{bmatrix}$$

~~$A^{-1}A$~~ $x = A^{-1}b$

$$x = \begin{bmatrix} 3/2 & -1/2 \\ -2 & 1 \end{bmatrix} \begin{bmatrix} 5 \\ 13 \end{bmatrix}$$

$$= \begin{bmatrix} 15/2 - 13/2 \\ -10 + 13 \end{bmatrix} = \begin{bmatrix} 1 \\ 3 \end{bmatrix}$$

try \Rightarrow $2x + y = 5$ solve for x, y
 $5x + 3y = 14$

aside

3

$$3^{-1} = \frac{1}{3} = 0.3333$$

$$3^{-1} \cdot 3 = 1$$

$$\begin{bmatrix} 2 & 1 \\ 5 & 3 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 5 \\ 14 \end{bmatrix}$$

$$\cancel{A^{-1}} \quad \cancel{A}$$

$$x = A^{-1}b$$


$$\begin{bmatrix} 2 & 1 \\ 5 & 3 \end{bmatrix}^{-1} = \frac{1}{6-5} \begin{bmatrix} 3 & -1 \\ -5 & 2 \end{bmatrix} = \begin{bmatrix} 3 & -1 \\ -5 & 2 \end{bmatrix}$$

$$\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 3 & -1 \\ -5 & 2 \end{bmatrix} \begin{bmatrix} 5 \\ 14 \end{bmatrix}$$

$$= \begin{bmatrix} 15-14 \\ -25+28 \end{bmatrix} = \begin{bmatrix} 1 \\ 3 \end{bmatrix}$$

$$(x, y) = (1, 3)$$

Sect: 4.7 (p. 217)

1, 3, 4, 23-26  solve it.

Sect: 3.6 (p. ?)

8, 9